IN THE CLAIMS

The text of all pending claims, along with their current status, is set forth below in accordance with 37 C.F.R. § 1.121.

1. (*Previously Amended*) A method for using a chemical additive to increase the rise time of air bubbles emitted from a diffuser in water for the purpose of suppressing noise in a marine seismic survey, said method comprising one of the following:

(a) coating the diffuser before use with a chemical additive having bubble coalescence retardation properties or wetting agent properties or both;

(b) mixing a chemical additive in with the air within the diffuser before the bubbles are emitted, said chemical additive having bubble coalescence retardation properties or wetting agent properties or both;

(c) injecting a chemical additive into the water in the region where the bubbles are emitted from the diffuser, said chemical additive having bubble coalescence retardation properties or wetting agent properties or both;

(d) mixing a chemical additive having wetting agent properties into the diffuser during fabrication;

(e) any combination thereof.

2. (*Previously Amended*) The method of claim 1, wherein the chemical additive used to coat the diffuser before use is Exxal-13 diluted in ethanol.

3. (*Previously Amended*) The method of claim 1, wherein the chemical additive used to coat the diffuser before use is one or more of the following: 2-ethyl-1-hexanol, octanol, Exxal-8, Exxal-9, Exxal-13, and sodium dodecyl sulfate.

4. (*Previously Amended*) The method of claim 1, wherein the chemical additive used to coat the diffuser before use is a poly(oxyalkylene) block copolymer composed of ethylene oxide (EO) and propylene oxide (PO) blocks having any of the following general structures: $(EO)_x(PO)_y(EO)_x$ and $(PO)_y(EO)_x(PO)_y$, where x is in the approximate range 2-128 and y is in the approximate range 16-67.

5. (*Previously Amended*) The method of claim 4, wherein the chemical additive used to coat the diffuser before use is one or more of the following: Pluronic L81, Pluronic L62, Pluronic L64, and Pluronic 25R2.

6. (*Original*) The method of claim 1, wherein the diffuser is a perforated hose made from polymeric or elastomeric material.

7. (*Previously Amended*) The method of claim 1, further comprising the step of preconditioning the diffuser to be coated before use by soaking or bubbling it in fresh or salt water before coating it.

8. (*Previously Amended*) The method of claim 1, further comprising, after coating the diffuser before use with a chemical additive having bubble coalescence retardation properties, the steps of operating the diffuser in water followed by recoating the diffuser with a chemical additive having bubble coalescence retardation properties.

9. (*Cancelled*)

10. (*Previously Amended*) The method of claim 1, wherein the chemical additive is atomized prior to mixing with the air within the diffuser before bubbles are emitted .

11. (*Previously Amended*) The method of claim 1, wherein the chemical additive for mixing with the air within the diffuser before bubbles are emitted is one or more of the following: n-propanol, 2-ethyl-1-hexanol, octanol, Exxal-8, Exxal-9, Exxal-13, and sodium dodecyl sulfate.

12. (*Previously Amended*) The method of claim 1, wherein the chemical additive for mixing with the air within the diffuser before bubbles are emitted is a poly(oxyalkylene) block copolymer composed of ethylene oxide (EO) and propylene oxide (PO) blocks having any of the following general structures: $(EO)_x(PO)_y(EO)_x$ and $(PO)_y(EO)_x(PO)_y$, where x is in the approximate range 2-128 and y is in the approximate range 16-67.

13. (*Previously Amended*) The method of claim 12, wherein the chemical additive for mixing with the air within the diffuser before bubbles are emitted is one or more of the following: Pluronic L81, Pluronic L62, Pluronic L64, and Pluronic 25R2.

14. (*Cancelled*)

15. (*Previously Amended*) The method of claim 1, wherein the chemical additive for injecting into the water is one or more of the following: n-propanol, 2-ethyl-1-hexanol, octanol, Exxal-8, Exxal-9, Exxal-13, and sodium dodecyl sulfate.

16. (*Cancelled*)

17. (*Previously Amended*) An apparatus for creating a bubble layer in water, comprising:

(a) a bubble diffuser hose made from polymeric or elastomeric material and having perforations at intervals along its length through which compressed air can be emitted; one end of said diffuser tube being closed, and the other end forking into a Y-conduit, said Y-conduit having a first Y-tube and a second Y-tube, said second Y-tube being adapted for connecting to an air compressor; and

(b) an inner tube having a closed end inserted closed end first through the end of the first Y-tube and on into the bubble diffuser hose, said inner tube extending through an opening in an air-tight seal placed at the end of the first Y-tube and being adapted for connecting outside the first Y-tube to the output end of a pump.

18. (*Previously Amended*) The apparatus of claim 17, further comprising a pump connected at its output end to the end of the inner tube extending beyond the first Y-tube and connected at its input end to a holding tank suitable for holding a chemical additive having bubble coalescence retardation properties.

19. (*Cancelled*)

20. (*Previously Amended*) The method of claim 1, wherein the chemical additive for mixing into the diffuser during fabrication is introduced in pellets comprised of Pluronic L81 blended into LLDPE, Polyvel VF-150 fatty glyceride wetting agent concentrate, or Polyvel VW-351 functionalized silicone wetting agent concentrate, and the diffuser is a perforated rubber and linear low density polyethylene (LLDPE) hose.

21. *(New)* A method for increasing the rise time of air bubbles emitted from a diffuser in water for the purpose of suppressing noise in a marine seismic survey, said method comprising the step of introducing into the diffuser a chemical additive having bubble coalescence retardation properties or wetting agent properties or both.

22. *(New)* The method of claim 21, wherein the chemical additive is coated on to the diffuser before use.

23. *(New)* The method of claim 21, wherein the chemical additive is mixed into the diffuser during fabrication.

24. *(New)* The method of claim 22, wherein the chemical additive has bubble coalescence retardation properties.

25. *(New)* The method of claim 24, wherein the diffuser is a perforated hose.

26. *(New)* The method of claim 25, wherein the perforated hose is made from a polymeric material.

27. *(New)* The method of claim 25, wherein the perforated hose is made from an elastomeric material.

28. *(New)* The method of claim 26, further comprising the step of preconditioning the hose by soaking it in water before coating it.

29. *(New)* The method of claim 28, wherein the water is salt water.

30. *(New)* The method of claim 28, further comprising bubbling the hose while soaking it.

31. *(New)* The method of claim 29, wherein the chemical additive is a poly(oxyalkylene) block copolymer composed of ethylene oxide (EO) and propylene oxide (PO) blocks having any of the following general structures: (EO)x(PO)y(EO)x and (PO)y(EO)x(PO)y, where x is in the approximate range 2-128 and y is in the approximate range 16-67.

32. *(New)* The method of claim 31, wherein the chemical additive is chosen from among the following: Pluronic L81, Pluronic L62, Pluronic L64, and Pluronic 25R2.

33. *(New)* The method of claim 32, wherein the chemical additive is Pluronic L81.

34. *(New)* The method of claim 29, wherein the chemical additive is Exxal-13 diluted in ethanol.

35. *(New)* The method of claim 29, wherein the chemical additive is chosen from among the following: 2-ethyl-1-hexanol, octanol, Exxal-8, Exxal-9, Exxal-13, and sodium dodecyl sulfate.

36. *(New)* A method for increasing the rise time of air bubbles emitted from a diffuser in water for the purpose of suppressing noise in a marine seismic survey, said method comprising the step of mixing a chemical additive in with the air within the diffuser before the bubbles are emitted, said chemical additive having bubble coalescence retardation properties or wetting agent properties or both.

37. *(New)* The method of claim 36 comprising the additional step of atomizing the chemical additive.

38. *(New)* The method of claim 36, wherein the chemical additive is chosen from among the following: n-propanol, 2-ethyl-1-hexanol, octanol, Exxal-8, Exxal-9, Exxal-13, and sodium dodecyl sulfate.

39. *(New)* The method of claim 36, wherein the chemical additive is a poly(oxyalkylene) block copolymer composed of ethylene oxide (EO) and propylene oxide (PO) blocks having any of the following general structures: (EO)x(PO)y(EO)x and (PO)y(EO)x(PO)y, where x is in the approximate range 2-128 and y is in the approximate range 16-67.

40. *(New)* The method of claim 39, wherein the chemical additive is chosen from among the following: Pluronic L81, Pluronic L62, Pluronic L64, and Pluronic 25R2.

41. *(New)* A method for increasing the rise time of air bubbles emitted from a diffuser in water for the purpose of suppressing noise in a marine seismic survey, said method comprising the step of injecting a chemical additive into the water in the region where the bubbles are emitted from the diffuser, said chemical additive having bubble coalescence retardation properties or wetting agent properties or both.

42. *(New)* The method of claim 41, wherein the chemical additive is chosen from among the following: n-propanol, 2-ethyl-1-hexanol, octanol, Exxal-8, Exxal-9, Exxal-13, and sodium dodecyl sulfate.